

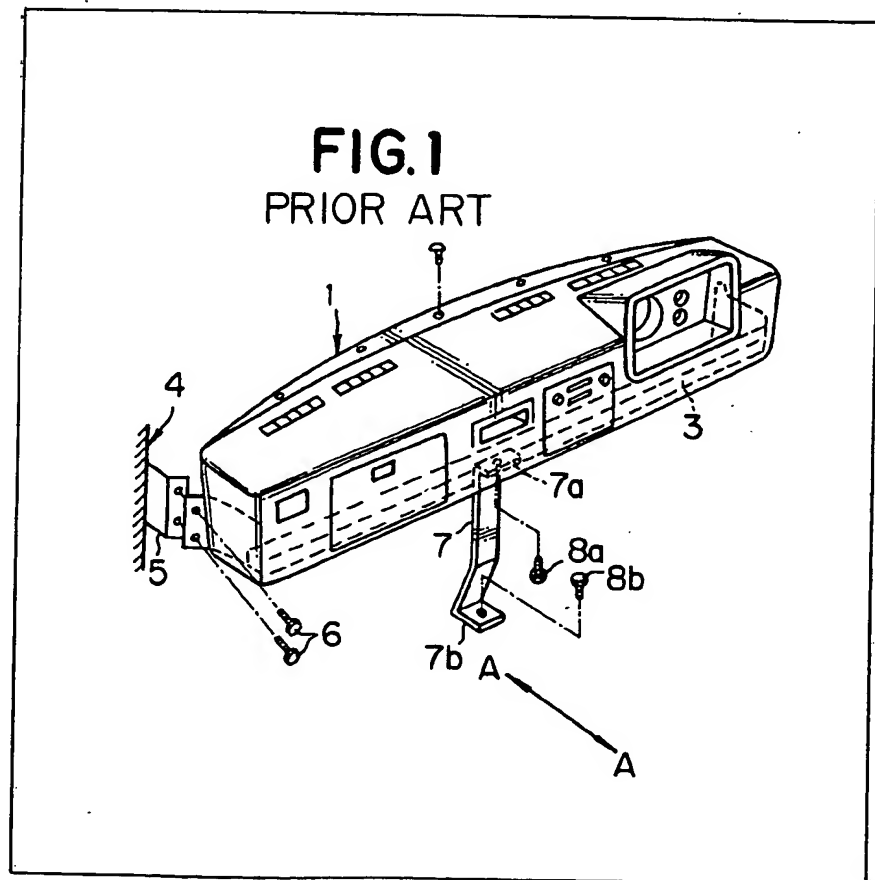
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## (54) Instrument panel support arrangement

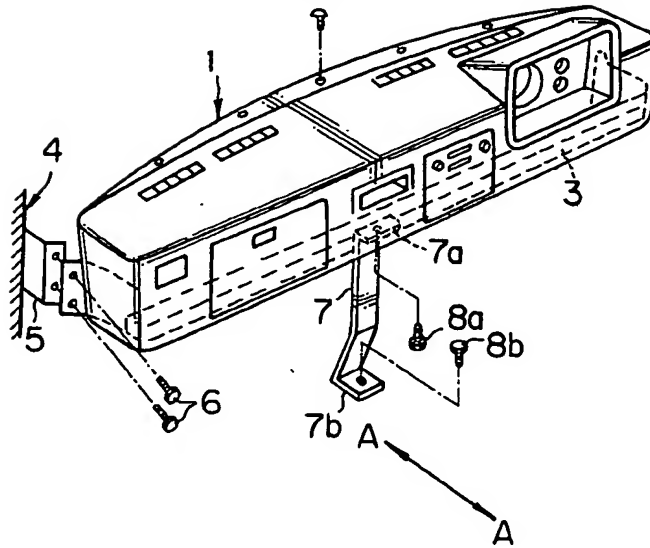
(57) An instrument panel support arrangement for supporting an instrument panel structure (1) on the front panel structure (4) of a vehicle body, comprising a rigid stay member (9) which extends downwardly from a laterally intermediate portion of the

instrument panel structure (1) and which is securely connected to the instrument panel structure (1) and the front panel structure (4), the stay member (9) having at least two lower end portions (9b, 9c) which are spaced apart from each other in a fore-and-aft direction of the vehicle body and which are secured to the front panel structure (4).



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**FIG.1**  
PRIOR ART



**FIG.2**  
PRIOR ART

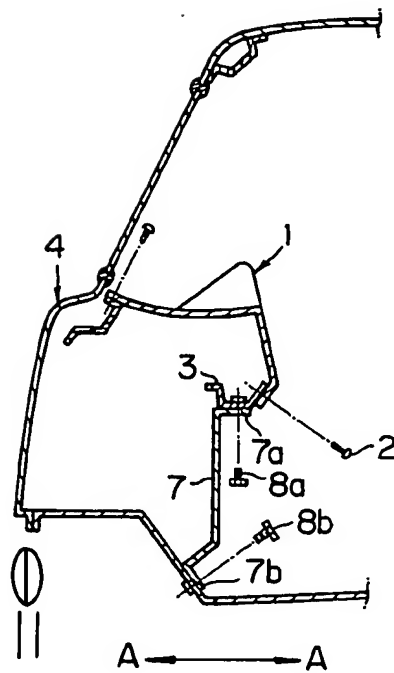


FIG. 3

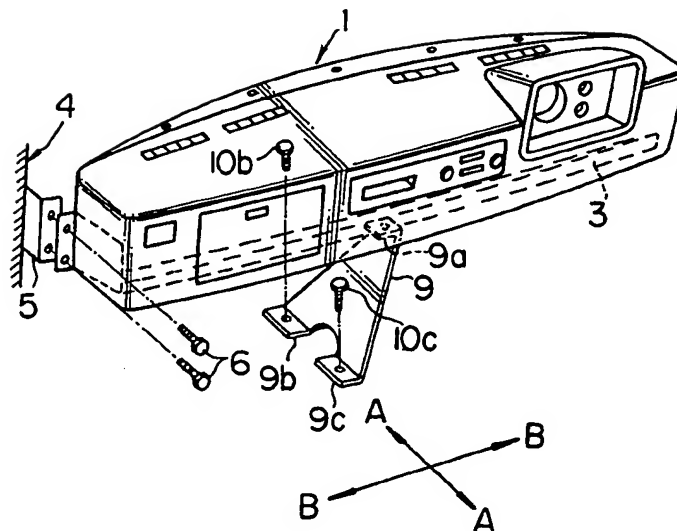
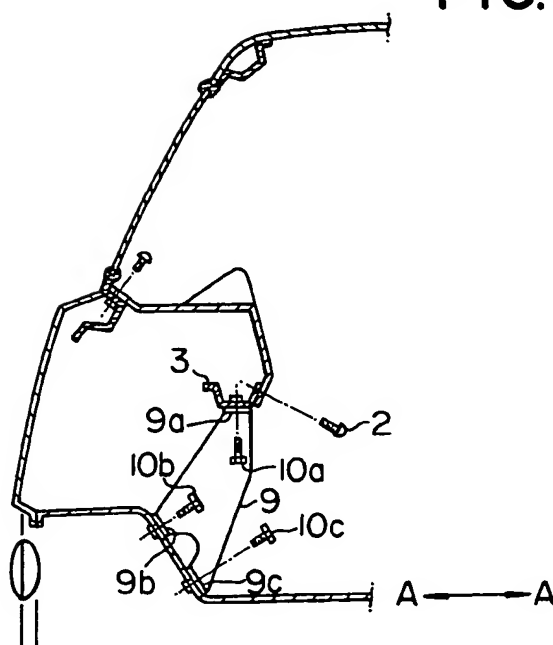


FIG. 4



## SPECIFICATION

### Instrument panel support arrangement

The present invention relates to an instrument panel support arrangement for supporting an instrument panel structure on a front panel structure of a vehicle body in such a manner as to be resistible to the vibrations to be transferred to the instrument panel structure.

In accordance with the present invention, there is provided an instrument panel support arrangement for supporting an instrument panel structure on the front panel structure of a vehicle body, comprising a rigid stay member which extends downwardly from a laterally intermediate portion of the instrument panel structure and which is securely connected to the instrument panel structure and the front panel structure, the stay member having at least two lower end portions which are spaced apart from each other in a fore-and-aft direction of the vehicle body and which are secured to the front panel structure. In the instrument panel support arrangement as set forth above, the stay member preferably has its opposite faces in fore-and-aft directions of the vehicle body.

The drawbacks of an prior-art instrument panel support arrangement and the features and advantages of an instrument panel support arrangement according to the present invention will be more clearly understood from the following description taken in conjunction with the accompanying drawings in which like reference numerals designate similar or corresponding structures and members and in which:

Fig. 1 is a perspective view showing a prior-art instrument panel support arrangement and an instrument panel structure supported by the arrangement;

Fig. 2 is a cross sectional view of the instrument panel structure and the instrument panel support arrangement shown in Fig. 1;

Fig. 3 is a perspective view showing an instrument panel support arrangement embodying the present invention and an instrument panel structure supported by the arrangement; and

Fig. 4 is a cross sectional view of the instrument panel structure and the instrument panel support arrangement shown in Fig. 3.

Referring to Figs. 1 and 2 of the drawings, an instrument panel structure 1 of an automotive vehicle is usually constructed of a synthetic resin and has a reinforcement member 3 of sheet iron fixedly attached to the instrument panel structure 1 by bolts 2 as shown in Fig. 2. The reinforcement member 3 is elongated laterally or transversely of the vehicle body and is securely connected at its opposite ends to a front panel structure 4 of a vehicle body by bracket members 5 integral with the front panel structure 4 and fastened to the reinforcement member 3 by bolts 6. The reinforcement member 3 is connected to the front panel structure 4 by means of a stay member 7 which extends downwardly from a laterally intermediate portion of the panel structure 1 and

which is secured to the reinforcement member 3 and the front panel structure 4 by bolts 8a and 8b, respectively, as shown in Fig. 2. The stay member 7 serves to reduce the vibrations of the instrument panel structure 1 in vertical and fore-and-aft directions of the vehicle body.

The stay member 7 forming part of the prior-art instrument panel support arrangement is constituted by an elongated strip of sheet iron and has an upper end portion 7a which is bent rearwardly of the instrument panel structure 1 and a lower end portion 7b which is bent rearwardly and downwardly of the panel structure 1. The upper end portion 7a is secured to the panel structure 1 by the bolt 8a and the lower end portion 7b is secured to a lower member of the front panel structure 4 by means of the bolt 8b. The stay member 7 is liable to be deformed in a fore-and-aft direction A—A (Fig. 2) of the vehicle body so that the instrument panel structure 1 cannot be reliably prevented from vibrating forwardly and rearwardly of the vehicle body. Vibrations of the instrument panel structure 1 will spoil the performance qualities of the instruments built into the instrument panel structure 1. The present invention contemplates elimination of these drawbacks of a prior-art instrument panel support arrangement of the described nature.

Referring to Figs. 3 and 4 of the drawings, an instrument panel structure 1 of an automotive vehicle incorporating an instrument panel support arrangement embodying the present invention is assumed to be also constructed of a synthetic resin and has a reinforcement member 3 of sheet iron fixedly attached to the instrument panel structure 1 by means of bolts 2 as shown in Fig. 4. The reinforcement member 3 is elongated in a lateral or transverse direction of the vehicle body and is securely connected at its opposite ends to a front panel structure 4 of a vehicle body by means of rigid bracket members 5 which are integral with the front panel structure 4 and which are fastened to the reinforcement member 3 by bolts 6. The reinforcement member 3 is connected to the front panel structure 4 by means of a stay member 9 which is constituted by a generally trapezoid sheet iron. The stay member 9 extends downwardly from a laterally intermediate portion of the panel structure 1 and is secured to the reinforcement member 3 and the front panel structure 4 by bolts 10a, 10b and 10c, respectively, as shown in Fig. 4. Furthermore, the stay member 9 has its opposite faces in fore-and-aft directions A—A of the vehicle body and has an upper end portion 9a and two lower end portions 9b and 9c which are spaced apart from each other in a fore-and-aft direction of the vehicle body, each of the end portions 9a, 9b and 9c being bent in a lateral or transverse direction B—B, viz., rightwardly or leftwardly of the vehicle body. The upper end portion 9a is secured to the panel structure 1 by the bolt 10a and the lower end portions 9b and 9c are secured to a lower member of the front panel structure 4 by means of the bolts 10b and 10c, respectively.

The instrument panel structure 1 being supported on the vehicle body as above described, the vibrations to be transferred to the instrument panel structure 1 in vertical directions are resisted by the tensile and compressive reaction of the stay member 9 as in the case of the prior-art instrument panel support arrangement described with reference to Figs. 1 and 2. On the other hand, the vibrations to be transferred to the instrument panel structure 1 in fore-and-aft directions of the vehicle body create bending loads in the stay member 9 in fore-and-aft directions of the stay member 9. Such bending loads are taken up by the two spaced lower end portions 9b and 9c of the stay member 9, with the result that the instrument panel structure 1 is effectively protected from vibrations in fore-and-aft directions of the vehicle body. The instrument panel support arrangement according to the present invention is thus capable of protecting the instrument panel structure 1 from vibrations in both vertical and fore-and-aft directions of the vehicle body and is for this reason expected to contribute to provide stability of installation and reliability of performance of the instruments built into the instrument panel structure 1. Because, furthermore, of the fact that the stay member 9 is arranged in such a manner as to have its faces in fore-and-aft directions of the vehicle body as above discussed, the provision of the stay member 9 will not result in reduction of the space below the instrument panel structure 1.

#### CLAIMS

1. An instrument panel support arrangement for

35 supporting an instrument panel structure on the front panel structure of a vehicle body, comprising a rigid stay member which extends downwardly from a laterally intermediate portion of the instrument panel structure and which is securely connected to the instrument panel structure and the front panel structure the stay member having at least two lower end portions which are spaced apart from each other in a fore-and-aft direction of the vehicle body and which are secured to the front panel structure.

2. An instrument panel support arrangement as set forth in claim 1, in which said stay member has its opposite faces in fore-and-aft directions of the vehicle body.

3. An instrument panel support arrangement as set forth in claim 2, in which said stay member has an upper end portion securely connected to the instrument panel structure.

4. An instrument panel support arrangement as set forth in claim 3, in which each of the upper and lower end portions is bent in a lateral direction of the vehicle body.

5. An instrument panel support arrangement as set forth in claim 4, in which said instrument panel structure has fixedly attached thereto a reinforcement member which is elongated in a lateral direction of the vehicle body and which is fixedly connected to the instrument panel structure at its laterally opposite ends.

6. An instrument panel support arrangement substantially as described with reference to, and as illustrated in, Figs. 3 and 4 of the accompanying drawings.